



Toshiba R6472 - DVD±RW Drive - IDE Specifications

Dvd writable drive

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SD-R6472

DVD WRITABLE DRIVE
Toshiba Samsung Storage Technology Corpor

PRODUCT SPECIFICATION

SEPTEMBER 2004

REV. 1.1

Specifications are subject to change without notice

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Dvd-rom drive (17 pages)

Summary of Contents for Toshiba R6472 - DVD±RW Drive - IDE

[Page 1](#) SD-R6472 DVD WRITABLE DRIVE PRODUCT SPECIFICATION SEPTEMBER 2004 REV. 1.1
Specifications are subject to change without notice DOCUMENT NUMBER 16285...

[Page 2](#) LIMITATION OF LIABILITY Those warranties in the express warranty separately agreed between Toshiba Samsung Storage Technology Corporation (hereafter the "TSST") and your company are the only warranties given to the customer and are in lieu of any other warranties,

whether express or implied with regard to this component.

[Page 3](#) error in reading operation. 4. Turn off the power for this equipment and wait more than one (1) minute before you eject the disc using the emergency eject mechanism when a disc cannot be ejected for some reasons in order to avoid the risk of damages to the disc.

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[Page 7: Introduction](#)

1. Introduction This document describes Toshiba Samsung Storage Technology Corporation (hereafter the "TSST") DVD Writable drive TS-L532A (SD-R6472). 2. Features This drive supports the following: read of copy-protected DVD discs (DVD Contents Scramble Systems discs.) read of CD-ROM, CD audio, DVD-ROM, and DVD-RAM discs.

[Page 8: Specifications](#)

3. Specifications 3.1. Performance (1) Writing Mode DVD-R: Disc at once, Incremental recording DVD-RW: Disc at once, Incremental recording, Restricted overwrite DVD+R Single Layer: Sequential recording DVD+R Double Layer: Sequential recording DVD+RW: Sequential recording, Random recording CD-R/RW: Disc at once, Track at once, Session at once, Packet write (2) Disc Format for Writing DVD-R:...

[Page 9](#) DVD+R Double Layer : 7.960 GB (8,547 billion bytes) DVD+RW : 4.377 GB (4.700 billion bytes) DVD-RAM Ver.2.1 : 4.377 GB (4.700 billion bytes) CD (Mode-1) : 656.5 MB (688.4 million bytes) CD (Mode-2) : 748.8 MB (785.2 million bytes) (5) Rotational Speed DVD (Single Layer) : Approx.

[Page 10](#) Ultra Speed CD-RW : CAV 776-1,800 Blocks/s High Speed CD-RW : CAV 776-1,800 Blocks/s Sustained Data Transfer Rate DVD (Single Layer) : CAV 4,416-10,816 KB/s DVD (Dual Layer) : CAV 3,380-8,112 KB/s DVD-R, DVD+R : CAV 4,420-10,800 KB/s DVD+R Double Layer : CAV 2,028-4,867 KB/s DVD-RW, DVD+RW : CAV 3,380-8,112 KB/s...

[Page 11](#) (13) Power Supply • { 5 V (See Chapter 7 for details) Notes *1: This drive requires separately provided and appropriate hardware and/or software to use formatted CD and DVD. *2: The disc motor rotation speed is optimized according to the access rate and pattern of the host PC. *3: The read speed is defined as 1X in case "User Data Bit Rate"...

[Page 12: Environmental Conditions](#)

3.2. Environmental Conditions This drive should be used under the conditions listed below. 3.2.1. Temperature and Humidity 5 °C ~ 50 °C (Media is excluded) (1) Operating Temperature -10 °C ~ 60 °C (2) Storage Temperature -40 °C ~ 65 °C (3) Shipping Temperature 11 °C /h

(max) (4) Operating Temperature Gradient...

[Page 13: Shock](#)

3.2.5. Shock (1) Operating (Read) -----no hardware error 14.7 m/s [1.5 G] (Horizontal) (Half sine wave 11 ms/10 s interval) -----no data loss 98 m/s [10 G] (Half sine wave 11 ms/10 s interval) (2) Operating (Write) -----no error 14.7 m/s [1.5 G] (Horizontal) 7.8 m/s [0.8 G] (Vertical)

[Page 14: Installation](#)

3.3.2. Installation (1) The surface where the drive is fixed must be sufficiently flat, and it is recommended that any unevenness is within 0.2mm enough. Be sure not to apply excessive force to the drive, as this may deform it, etc. (2) Leave as much spaces as possible around the sides of and above the drive, so that it does not come into contact with any other equipment, even if subjected to vibration, shock, etc.

[Page 15: Recommendation](#)

3.3.3. Recommendation: When this drive is to be installed in another equipment from the side, using mounting surfaces, it may be deformed or operational failure may occur for the following reasons. (1) The spaces between this drive and the mounting surfaces on both sides are too wide. (2) The mounting surfaces are deformed.

[Page 16](#) (Unit: mm) Figure 5-1 External Dimensions TS-L532A (SD-R6472) Rev.1.1 10 / 28...

[Page 17](#) (Unit: mm) Figure 5-2 External Dimensions TS-L532A (SD-R6472) Rev.1.1 11 / 28...

[Page 18: Reliabilities](#)

3.5. Reliabilities 3.5.1. Error Rate (1) Hard Read Error Rate (Byte Error Rate) -----Allowing 5 Retries (default) DVD: Mode 1:10 Mode 2:10 (2) Seek Error Rate -----Allowing 10 Retries (default) 3.5.2. MTBF 60,000 h Assumptions: Power On Hours 5,436 h/year On/Off Cycles 313 cycles/year Number of Access...

[Page 19](#) Figure 6 Configuration TS-L532A (SD-R6472) Rev.1.1 13 / 28...

[Page 20: Functions](#)

5. Functions 5.1. Power ON/OFF Timing (Target) Figure 7 shows the initialization sequence. POWER ON or Max. 550 ms ATAPI-RST "Command" Receivable System Initialization Max. 4s Focus Search Max. 5s Spindle ON Learning CD: 20s, DVD 2 Layer: 18s, Max. 60s (Single Session Disc) Stand-by "Read Command"...

[Page 21: Signal Outline](#)

6.2. Signal Outline The interface part consists of single-end TTL receivers or equivalent, and signals are transferred through the 50P connector as shown in Figure 12 and Figure 13, "Interface connector." 6.2.1. Signal Specifications Figure 8 shows the Signal Specifications. Receivers/Drivers Characteristics without External pullup Resistor NOTE Sig.

[Page 22: Timing Of Host Interface \(Pio\)](#)

6.2.2. Timing of Host Interface (PIO) Figure 9 shows the timings of the host interface. Address valid DIOR-/DIOW-*1 Write data valid Read data valid IORDY *1: In all timing diagrams, the low line indicator is negated and the upper line indicators asserted. PIO timing parameters min (ns) max (ns) Min Time (ns) Max Time (ns)

[Page 23: Timing Of Host Interface \(Multi Word Dma\)](#)

6.2.3. Timing of Host Interface (Multi word DMA) Figure 10 shows the timings of the host interface Multi word DMA. DMARQ DMACK-*1 DIOR-/DIOW-*1 Read DD0-15 Write DD0-15 *1: In all timing diagrams, the low line indicator is negated and the upper line indicators asserted. Multi word DMA Min time (ns) Max time (ns)

[Page 24: Timing Of Host Interface \(Ultra Dma\)](#)

6.2.4. Timing of Host Interface (Ultra DMA) Figure 11 shows the timings of the host interface Ultra DMA word. tMLI DMARQ DMACK- t2CYC tCYC tCYC tACK STOP tACK tENV t2CYC DMARDY

tZAD tRFS tZIORDY STROBE tDVS tDVH tDVS tDVH tDVS tDVH tDVS tDVH DD (15:0) Sender...

[Page 25: Connector](#)

6.3. Connector Figure 12 shows the interface connector, and Figure 13 shows the interface pin assignments. Use Japan Aviation Electronics Industry Limited KX15-50KLD or equivalent. Applicable connectors are Japan Aviation Electronics Industry Limited KX14-50 series. DVD-ROM DRIVE REAR VIEW BOTTOM * This connector does not allow reverse connection.

[Page 26: Support Command List](#)

6.4. Support Command List ATAPI Packet Command OP Code Command Description Test Unit Ready Rezero Unit Request Sense Format Unit Inquiry Start / Stop Unit Receive Diagnostic Results Send Diagnostic Prevent / Allow Medium Removal Read Format Capacities Read Capacity Read (10) Write (10) Seek (10)

[Page 27: Power Requirements](#)

ATA Commands OP Code Command Description ATAPI Soft Reset 20 / 21h Read Sector (s) Execute Drive Diagnostics ATAPI Packet ATAPI Identify Device Standby Immediate Idle Immediate Standby Idle Check Power Mode Sleep Flush Cache ATA Identify Device Set Feature 7.

[Page 28: Peak In Accessing](#)

7.2.7. Peak in accessing 1800 mA (DVD/CD) (Excluding Spike Current) *Spike: 1 ms or less duration 7.2.8. Write 1040 mA (CD-R 24X) 700 mA (CD-RW 4X) 850 mA (High Speed CD-RW 10X) 840 mA (Ultra Speed CD-RW 10X) 970 mA (DVD-R 8X) 890 mA (DVD-RW 4X) 970 mA (DVD+R 8X) 860 mA (DVD+RW 4X)

[Page 29: Busy Indicator](#)

10. Busy Indicator The Busy LED (hereafter 'the indicator') on the front panel indicates the drive state. Color: Amber (1) The indicator remains turned off when the drawer is open. (2) When the drawer is closed, the indicator blinks for several seconds at intervals of 0.8 seconds, then moves into the following states.

[Page 30: Emergency Release](#)

(5) When the release button is pressed, the indicator blinks at intervals of 0.4 seconds until the drawer is released, then it is turned off. 0.4 s Light Off Released Figure 19 Release (6) The indicator blinks at intervals of 3.25 seconds during the DVD+RW background formatting, then is turned off when formatting is completed.

[Page 31: Safety Standards/Agency Approvals](#)

12. Safety Standards/Agency Approvals (1) Safety EN 60950-1:2001 UL 60950-1:2003 CAN/CSA-C22.2 No.60950-1-03 (2) Laser FDA 21CFR (U.S.A./DHHS) EN 60825-1:1994+A2:2001+A1:2002 (Europe/Canada) (3) EMC 89/336/ECC (CE-Mark) EN55022 : 1998 [Class B (including domestic environment)] : 2000 [Amendment to EN55022] : 2003 [Amendment to EN55022] EN55024 : 1998 [Product immunity standard for IT-equipment] : 2001 [Amendment to EN55024]...

[Page 32: Electrostatic Discharge](#)

13. Electrostatic Discharge Standard IEC61000-4-2 (1) Operating 8 kV or less (2) Damage including 15 kV or more 14. Accessories None 15. Packaging (1) 50 units / 1 bulk pack 24 bulk packs per 1 pallet. * The unit for shipping is the pallet. (Shipping bulk packs only is not available.) (2) 20 units / 1 bulk pack 24 bulk packs per 1 pallet.

[Page 33](#) Annex 1 TS-L532A (SD-R6472) Rev.1.1 27 / 28...

[Page 34](#) Annex 2 TS-L532A (SD-R6472) Rev.1.1 28 / 28...

[Page 35](#) Deviation List Rev#1.0 Page Item Rev#1.1 2. Features ----- DVD+R Double Layer discs Read Speed: 3.6X maximum ----- DVD+R Double Layer discs Write Speed: 2.4X 3.1. Performance (1) Writing Mode ----- DVD+R Double Layer: Sequential recording (2) Disc Format for Writing ----- DVD+R Part 2 Double Layer 8.5 GB Basic Format Spec.

This manual is also suitable for:

[Sd-r6472](#)